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EXPLAINING THE THEORY OF EVERYTHING AND THE BIG BANG

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ABSTRACT

The paper entitled "The theory of everything and the big bang" attempts to explain the most mind bending realisation of all time known as "Unification". Unification of all the forces, every law of physics in to one single-math equation.

This paper gives us a brief idea about how our universe works and also about the ideas that revolutionized the physics world- "General Relativity" and "Quantum physics" along with the new striking idea called "The String Theory."

KEYWORDS: General Relativity and Quantum Forces, Space, Time and Energy

INTRODUCTION

Einstein's Theory of Relativity is Based on Two Principles

- If you have two objects and nothing else, it is impossible to tell which object is moving, and which object is standing still.
- The speed of light is same for all the observers.

Theory of Everything

The expansion of the Universe backwards in time using general relativity yields on infinite density and temperature at a finite time in the past. Here the singularity signals the breakdown of the general relativity. From the experiments and also using Hubble telescope, we know that our Universe is expanding.

If we go back in time (not considering the 2nd law of thermodynamics), we are just assuming to get back in time.

But before that, consider you are in motion somewhere on earth (train) and observe a distant galaxy or anything which is beside you, you observe that you're not moving.From your point of view it is galaxy or your surroundings are in motion. But when we consider from the galaxy point of view, we observe a quite different pattern, for it you're in motion and it is standing still.

It is difficult to say which of the conditions is correct; both have the same chance of being correct. Einstein's first principle of relativity is based on it.

Okay let us get back to our present theory. From the observations conducted by Hubble telescope, it is evident that our universe appears to be expanding at an increasing rate. This means that the velocity at which distant galaxy is receding from us should be continuously increasing with time.

When we go backwards in time all the galaxies, stars, planets, asteroids move very close, where they have a chance of forming a primeval atom, which caused the bang.

But here is the problem, the concept of primeval atom is not perfectly true, because I don't think the primeval atom components had no outer space to move, so how did they expand into outer space, which is consider being not in existence at the time of bang. And it is just absurd to put back our universe into a small nut shell.This is definitely not true.

Okay, to make it easier, we know that energy can neither be created nor destroyed. So what is energy made up of and where did it come from? And how did this all energy combine to form mass, which became matter and not anti-matter? And why is the universe so balanced that life can exist?

The thing we call space- Is it true space? Is our universe the only universe or is it just a part of space? If we take the concept of primeval atom to be true, the above point raises along with the concept called singularity. Actually according to singularity, this was when the time came into existence. This is also not true.

According to Einstein, space and time are in single continuum making it Space-time. So when you consider the past, present and future, they are all same and are persistent. But when applied to quantum mechanics, the probability of being true in one condition depends upon the other probabilities too. If one occurs, then all other probabilities are ruled out.

The probability field gives hope to a mind boggling idea of Parallel universe and also multiverse. As mentioned above if one condition is true, other must be wrong. We can conclude that both the conditions should occur. This means every probability should be carried out. But if the God does roll dice, then the question of extra universe goes out of the picture.

Think of space-time as a loaf of bread. Einstein realized that just as there are different ways to cut a loaf of bread into individual slices, there are different ways to cut space-time into individual now-slices. That is because motion affects the passage of time. Someone who is moving will have different conception of what's happening right now. And so they will cut the loaf into different now-slices, there slices will be at a different angle.

Einstein unified the idea of space with the idea of time into the four dimensional structure called space-time. To get a feel for the bizarre effect this can happen, imagine an alien here in a galaxy, ten billion light years from the earth and way over there on earth, the guy at the gas station. Now if the two are sitting still not moving in relation to one another their clocks tick of time at the same rate and so they share same now-slices that cuts straight across the loaf.

What would happen if the alien hops on his bike and rides directly away from the earth? Since motion slows the passage of time, their clocks no longer tick of time at the same rate. And if their clocks no longer agree, then their now-slices no longer agree either. The alien's now-slice cuts through the loaf differently, it angles towards the past. Since the alien is biking at a slow pace, his slice is angled to the past by only a minuscule amount. But across such a vast distance that tiny angle results in a huge difference in time. So what the alien would find on his angled now-slice, what he considers is happening right now on earth no longer includes our friend at the gas station or even forty years earlier when our friend was a baby. Amazingly the alien's now-slice has swept back to two hundred years of earth history. And now includes the events that we consider a part of our distant past, like Abraham Lincoln finishing his great Gettysburg address. Even at relatively slow speed we can actually have a tremendous disagreement on our labelling of now-what happens at the same time, if we are spread out far enough in space.

And if that's not strange enough, the direction you move makes a difference too. Consider what would happen if the alien turns around and bikes towards the earth. The alien's new now-slice is angled toward the future. And so it includes events that won't happen on earth for two hundred years, perhaps our friend's great-great-great-grand daughter teleporting from Paris to New York.

Once we know that your now can be what I considered to be the past or your now can be what I consider the future. And your now, is every bodies, is valid as my now, then we learn that the past must be real and future must be real, they could be your now. That means past, present and future all are equally real. They all exist. The past is not gone and the future isn't non-existent. The past, present and future exist in exactly the same way. Everything that has ever happened or will happen, it all exists.

With this bold insight Einstein shattered basic concept of how we experience time. *"The distinction between past, present and future, he once said is only an illusion however persistent."*

Let us assume the present situation of alien somewhere before the time of bang, from this frame alien's view will be that earth is not even in existence and big bang also never occurred. Because there is no time before, and it also yields singularity. So the idea of Big bang seems to be absurd.

The quantum laws and thermodynamics laws are also correct according to space-time relationship.

We do not know the correct probability of what is happening somewhere, unless we see it particularly. If we see that one condition of probability is true, other conditions are definitely wrong. So we can never simultaneously know both the position and the momentum. If we think our container as the entire universe, then this would imply that the universe consists of just one probability wave, governing the probability of all the particles in existence.

THE LAWS OF THERMODYNAMICS

First Law States That

The energy can never be created or destroyed. Energy can be transformed from one object to another. The amount of energy in the universe is constant and the energy flows backwards in time in same way as it does forwards in time. And Mass is greater form of energy.

If we are accelerating more and more, our speed increases with increase in mass requiring more and more energy.This is why no one can move equally to the speed of light.

The second law of thermodynamics does not work the same way backwards in time.

Second Law States That

The entropy of an isolated system never decreases, because isolated systems spontaneously evolve toward thermodynamic equilibrium—the state of maximum entropy.It states that entropy of the universe can only go up.The entropy of the universe can never go back down.

If the objects move back down in time, the entropy decreases violating the second law of the thermodynamics. But it will actually work, if we change the directions of the particles that they can go back in time and helping entropy to go back in time.

Entropy also applies to energy. The entropy is highest when the energy has spread out evenly throughout all the particles. This is why heat flows from warmer objects to colder objects, until they reach the same temperature. Complex objects can be put together only because energy is added and converted into heat. With the dispersion of energy, heat increases entropy. Because of the dispersion of energy as heat, the total entropy of the universe gets increased. However, all objects will eventually reach the same temperature, if we wait long enough. One day all stars will go out, losing their energies. This might be correct.

We know that everything is fixed in time. By this we can also say that time is infinite along with space. Time has no beginning or an end. And to say actually there is no particular time. Every one of us has our own time. Time for me is not time for you. Time for you is not time for me.

Time is just a moment as we consider it. And motion through space also affects the passage of time. From this we can say that our universe is not whole, it is just a part. And big bang never occurred. Because the space and time are infinite, they are not finite. They have no beginning or an end.

Possibilities of what might have happened and what might happen.

- If the big bang occurred, it might have taken place somewhere near a black hole, as it is only place where time does not exist. The black hole might be a part of a galaxy in another universe. The primeval atom might have been a star or any hot particle.
- Or else as we go back in time, things move closer and closer where we have chances for collisions which might have paved the way for expanding of the universe. However we last get back to a question, from where does this all come from, this space, time and energy? Is it just an accident or does a divine plan exist behind it?
- Space is just an illusion through time; time is also just an illusion through space. They both are infinite; energy can never be in existence without space and time. And without energy there will be no mass, without mass any objects in universe can never exist. And not even the primeval atom which caused the bang. But in terms of second law of thermodynamics, entropy is increasing in universe, so if increasing now means that it might have come from a less entropic stage where all the galaxies, stars and all other things should be in small state. The big bang might have taken place, but it is not actually the beginning of the whole space, time and energy. It is just beginning to our present universe.
- And energy can never be destroyed, until space and time goes out. So there is no meaning in considering the end of world. JESUS may return or any other natural calamity can occur but it will be the end of our earth and some other galaxies. It might end our universe also. But not the whole concepts of space, time and energy governed equally under the laws of quantum physics and general relativity.

Space, time and energy are all just an illusion. As I see, the laws of physics put a big question to our faith. Does the God exist?

The theory really suggests space-time along with energy is bound together relatively by the laws of quantum mechanics along with gravity. Space, time, energy and forces (gravity, electromagnetic force, strong nuclear force, and weak nuclear force) are all infinite.

Space is made up of two forms of energy, both well balanced. One is gravity and the other is quantum forces (electro-magnetic force, strong nuclear force and weak nuclear force) with respect to time. Here probabilities of gaining & losing energies play a dominant role, making entropy always go up. You will never know the entropy at the beginning or at the end.

Space-time along with energy is equally governed by gravity and quantum forces, with probability playing a role.

God does roll the dice.

So now we came to a conclusion that- Space, Time & Energy are infinite with the forces acting in them. They are in existence forever.

To say actually we need to combine all the forces because the force that acts in the collisions and all other things, works with a purpose. Every force is equal to other force in a way that acts, but when we compare them, we find one to be more effective than the other, but both are equal. The force which will be more effective at a particular situation depends upon the condition at which it is required. So everything is governed in the universe with a same law of force through energy in space-time. They all work together. All these four systems govern everything in the state of probability.

But here comes the question- where did everything, the space, time, energy and forces come from and how do they exist?

The answer is simple, they are infinite and we can't see them, they are everywhere.

CONCLUSIONS

God might exist or might not. But the truth is depending on the String theory. The string theory also lacks in explaining everything and it is a theory which is not yet given a correct proof about its certainty. The string theory does give us a concept of many worlds, which might be wrong. It is just an infinite structure of 4 dimensions, which includes time. String theory makes it to 11 dimensions, which might be possible.

The energy which gets disappeared in some of the experiments and collisions that occur is just present in the other dimensions. These dimensions are very small due to the fabric nature of our universe. So the parallel universe might exist.

And of the theory of everything, both the gravity and quantum mechanics are together in a sense that the other dimensions exist. Because when both conditions are to be applied, gravitational force appears more effective in the case of large particles. Here the quantum forces do exist but in other dimensions in a way of making everything possible and to keep in existence. So in these conditions the other forces are not taken into account, when gravity is considered. Because the other forces have very small values, they can be ignored.

But in some conditions, we require both sets of laws. In those conditions, only one between gravity and electro-magnetic force must be picked along with strong and weak nuclear forces because gravity and electro-magnetic force both act as the same force. Both are very strong and powerful, they might repel each other. If both are taken into account then condition will just break up. The theory of everything can be explained in numbers and alphabets, if we can prove the String theory. There are also some of the questions yet to be answered.

Seven questions to be answered.

1. "Why is the universe so balanced such that life can exist?"

2. "How come the universe is made of matter and not antimatter?"

3. "What will be the fate of our universe?"

4 "Why do we live and why do we die?"

5. "Who or what exactly is making everything happen?"

6. "What if everything we look at is just an illusion?"

7. "The higgs boson, why does it exist?"

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